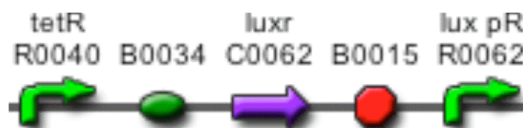


# F2620 - 3OC<sub>6</sub>HSL Receiver Device with TetR Control



Compiled By - Barry Canton (bcanton@mit.edu)

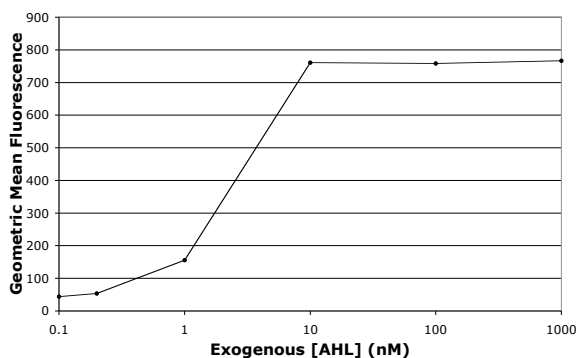
Last Updated - 5/9/05

**Description:** This device is a member of the Lux family of receivers. The intended signaling molecule is 3OC<sub>6</sub>HSL. LuxR production is controlled by a tetR repressible promoter. This was one of the first receivers built and is among the best characterized on multiple plasmids and in different cell strains.

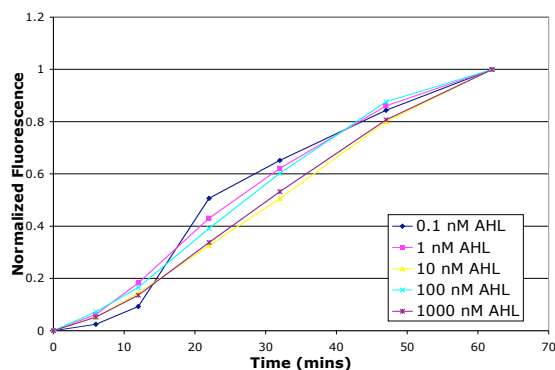
**Usage Notes:** In the fully induced state this device produces high output PoPS as evidenced by a significant reduction in host growth rate when used with pSB1A2 (see Load characteristics below).

## Device Characteristics

### 1. Transfer Function



### 2. Latency



### 3. Load (At full induction):

NTP/(s.copy) - ?

RNAP/copy - ?

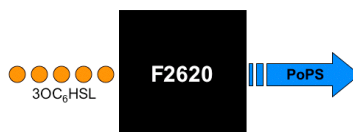
Usage Conditions	Test Conditions	Also Used In
Host Strain	MC4100	MG1655, DH5a
Plasmids	pSB3k3-1	pSB1A2
Culture Type	Batch (100ml Flask)	96 Well Plate (200ul)
Media	Supplemented M9	LB
Equipment	FACScan Cytometer, Victor 3 Plate Reader	NPE Cytometer
Protocols	MIT Synthetic Biology FACS Protocol	
Output Devices	E0430	E0434

**4. Compatibility:** Cross-talk is expected with AHL molecules similar to 3OC<sub>6</sub>HSL. Has been tested with the following sender devices - F1610. Crosstalk with devices using the tetR protein.

**5. Genetic Stability:** The stability of this device over many generations has not yet been evaluated. Use from a freshly streaked plate where possible.

# BBa\_F2620

3OC<sub>6</sub>HSL → PoPS Receiver



Author(s): Barry Canton [bcanton@mit.edu]

Last Update: May 10, 2005

## Description

A transcription factor [LuxR] that is active in the presence of cell-cell signaling molecule [3OC<sub>6</sub>HSL] is controlled by an operator [TetR]. *Device input* is 3OC<sub>6</sub>HSL. *Device output* is PoPS produced at a LuxR-regulated operator.

## Usage

Full PoPS output at high 3OC<sub>6</sub>HSL levels and high plasmid copy [e.g., pSB1A2] results in a reduced cell growth rate (see *Load* section). If used in a cell containing TetR then a second input signal [aTc] can be used to produce a logical *AND* function.

## Characteristics

*Input Swing*: ## nM 3OC<sub>6</sub>HSL, exogenous

*Output Swing*: ## PoPS

*Switch Point*: 2 nM 3OC<sub>6</sub>HSL, exogenous

*LH Latency*: # seconds

*HL Latency*: # seconds

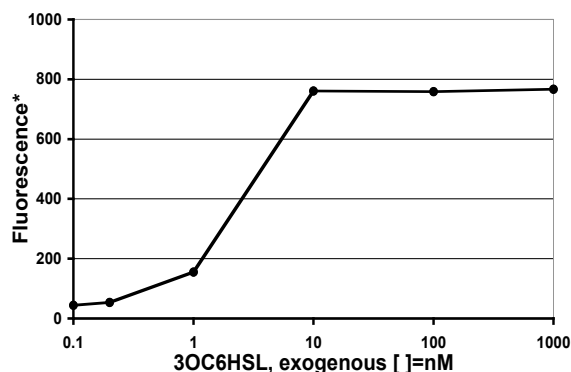
## Key Components

BBa\_R0040: TetR-regulated operator

BBa\_C0062: luxR ORF

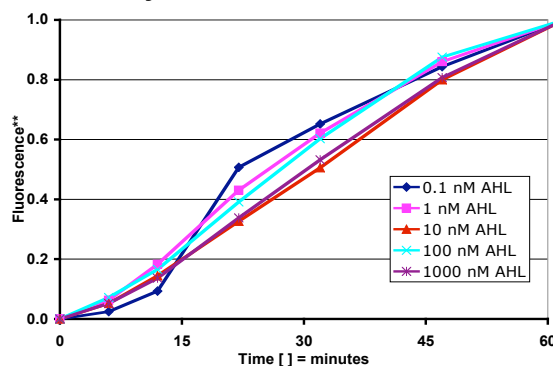
BBa\_R0062: LuxR-regulated operator

## Transfer Function



\*Device output measured indirectly via PoPS-driven fluorescence from BBa\_E0430, [ ] = geometric mean, arbitrary units. Host cell MC4100, device carried on pSB3K3, 100ml batch flask, supplemented M9 media, FACScan cytometer [see MIT SBWG FACS protocol].

## Latency



\*\*Device output measured indirectly via PoPS-driven fluorescence from BBa\_E0430, [ ] = geometric mean, arbitrary units. Host cell MC4100, device carried on pSB3K3, 200ul 96-well plate, VictorV plate reader [see MIT SBWG plate reader protocol].

## Load

*NTP/sec/copy*: # NTP per second

*AA/sec/copy*: # AA per second

## Stability

*Genetic*: > # replication events\*

*Operational*: > # replication events\*

## Compatibility

Device has been shown to work in MC4100, MG1655, and DH-5α.

Device has been shown to work on pSB3K3 and pSB1A2.

Device has been shown to work with E0430 and E0434.

Crosstalk with input molecular similar to 3OC<sub>6</sub>HSL.

Crosstalk with systems containing TetR.

PDL Devices

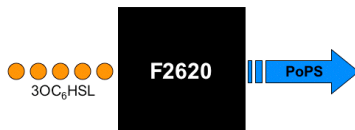
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# BBa\_F2620

3OC<sub>6</sub>HSL → PoPS Receiver

[http://parts.mit.edu/registry/index.php/Part:BBa\\_F2620](http://parts.mit.edu/registry/index.php/Part:BBa_F2620)



Authors:  
Barry Canton [bcanton@mit.edu]  
Anna Labno [labnoa@mit.edu]

Last Update: 5 October 2006

## Description

A transcription factor (LuxR, BBa\_C0062) that is active in the presence of cell-cell signaling molecule 3OC<sub>6</sub>HSL is controlled by a tetR regulatable operator (BBa\_R0040). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input signal such as aTc can be used to produce a logical AND function.

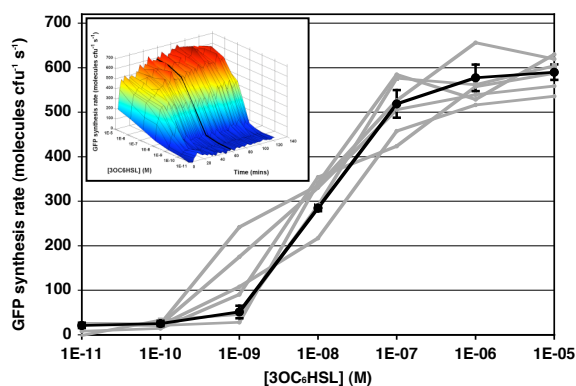
## Characteristics

**Input Swing:** 0.1 to 1000 nM 3OC<sub>6</sub>HSL, exogenous  
**Output Swing:** 21±3 to 590±9 GFP molecules cfu<sup>-1</sup> s<sup>-1</sup>  
**Switch Point:** 10 nM 3OC<sub>6</sub>HSL, exogenous  
**LH Response:** 9.7 min (t<sub>50%</sub>), 17 min (t<sub>90%</sub>)

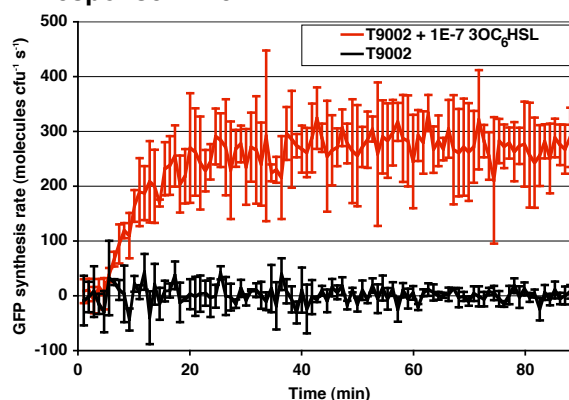
## Key Components

BBa\_R0040: TetR-regulated operator  
BBa\_C0062: luxR ORF  
BBa\_R0062: LuxR-regulated operator

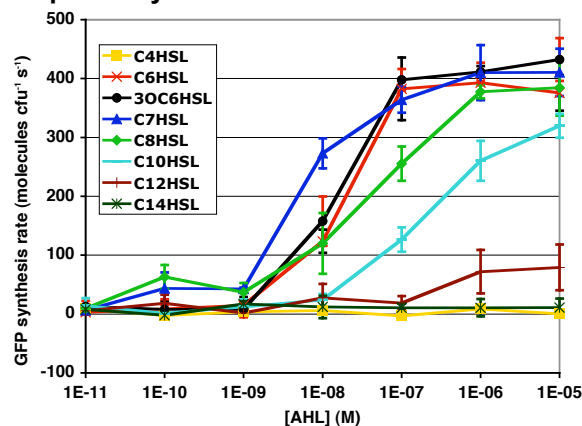
### Transfer Function\*



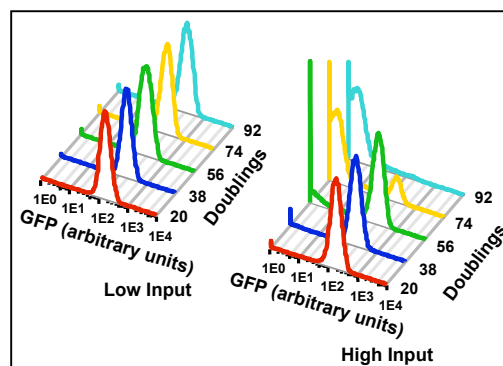
### Response Time\*



### Specificity\*



### Stability\*\*



Protein:DNA Devices

## Demand

Translation Demand: 5040/141600 charged tRNA cfu<sup>-1</sup> s<sup>-1</sup>  
(low/high input) 336/9449 ribosomes sequestered cfu<sup>-1</sup>

## Compatibility

**Chassis:** Compatible with MC4100, MG1655, and DH5α  
**Plasmids:** Compatible with pSB3K3 and pSB1A2  
**Devices:** Compatible with E0240, E0430 and E0434  
Crosstalk with systems containing TetR (C0040)  
**Signaling:** Crosstalk with input molecules similar to 3OC<sub>6</sub>HSL

## Stability

**Genetic:** >92/74 replication events\*  
**Performance:** >92/74 replication events\*

## Conditions (abridged)

**Output:** Indirect via BBa\_E0240  
**Vector:** pSB3K3  
**Chassis:** MG1655  
**Culture:** Supplemented M9, 37°C  
**\*Equipment:** PE Victor3 plate reader  
**\*\*Equipment:** BD FACScan cytometer

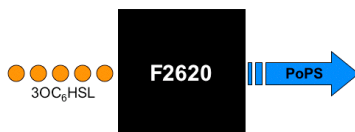
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# BBa\_F2620

3OC<sub>6</sub>HSL → PoPS Receiver

[http://parts.mit.edu/registry/index.php/Part:BBa\\_F2620](http://parts.mit.edu/registry/index.php/Part:BBa_F2620)



Authors:  
Barry Canton [bcanton@mit.edu]  
Anna Labno [labnoa@mit.edu]

Last Update: 5 October 2006

## Description

A transcription factor (LuxR, BBa\_C0062) that is active in the presence of cell-cell signaling molecule 3OC<sub>6</sub>HSL is controlled by a TetR-regulated operator (BBa\_R0040). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input signal such as aTc can be used to produce a Boolean AND function.

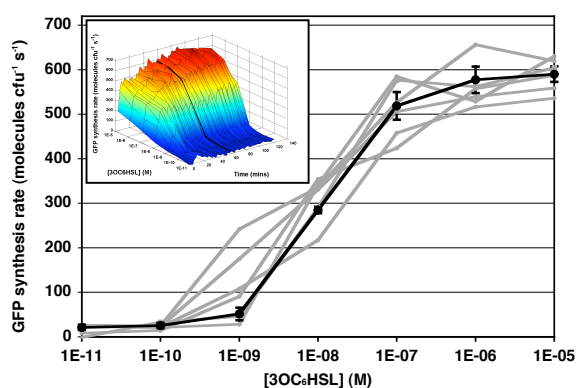
## Characteristics

**Input Swing:** 0.1 to 1000 nM 3OC<sub>6</sub>HSL, exogenous  
**Output Swing:** 21±3 to 590±9 GFP molecules cfu<sup>-1</sup> s<sup>-1</sup>  
**Switch Point:** 10 nM 3OC<sub>6</sub>HSL, exogenous  
**LH Response:** 9.7 min (t<sub>50%</sub>), 17 min (t<sub>90%</sub>)

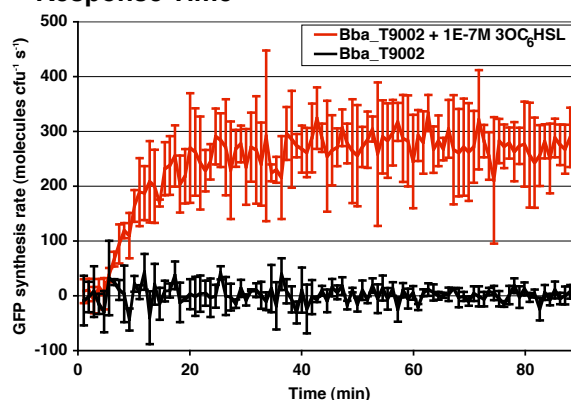
## Key Components

**BBa\_R0040:** TetR-regulated operator  
**BBa\_C0062:** luxR ORF  
**BBa\_R0062:** LuxR-regulated operator

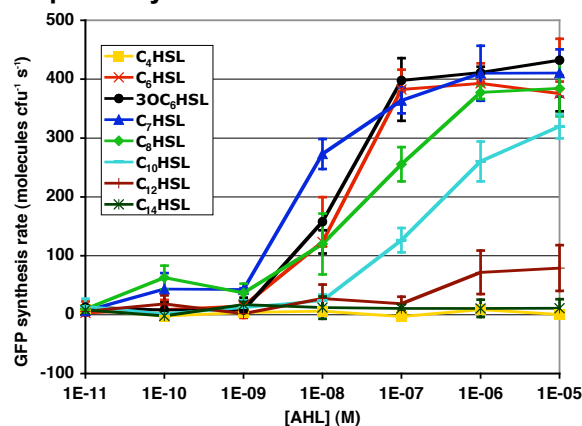
## Transfer Function\*



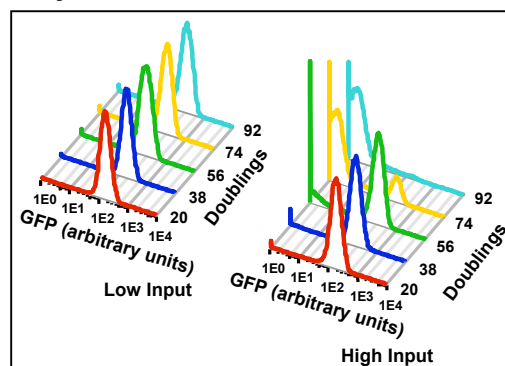
## Response Time\*



## Specificity\*



## Stability\*\*



## Demand (low/high input)

**Translational:** 336/9449 ribosomes cfu<sup>-1</sup>  
5040/141600 charged tRNA cfu<sup>-1</sup> s<sup>-1</sup>

## Stability (low/high input)

**Genetic:** >92/74 replication events\*  
**Performance:** >92/74 replication events\*

## Compatibility

**Chassis:** Compatible with MC4100, MG1655, and DH5α  
**Plasmids:** Compatible with pSB3K3 and pSB1A2  
**Devices:** Compatible with E0240, E0430 and E0434  
Crosstalk with systems containing TetR (C0040)  
**Signaling:** Crosstalk with input molecules similar to 3OC<sub>6</sub>HSL

## Conditions (abridged)

**Output:** Indirect via BBa\_E0240  
**Vector:** pSB3K3  
**Chassis:** MG1655  
**Culture:** Supplemented M9, 37°C  
**\*Equipment:** PE Victor3 plate reader  
**\*\*Equipment:** BD FACScan cytometer

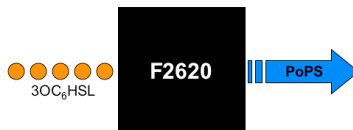
Signaling Devices



# BBa\_F2620

3OC<sub>6</sub>HSL → PoPS Receiver

[http://parts.mit.edu/registry/index.php/Part:BBa\\_F2620](http://parts.mit.edu/registry/index.php/Part:BBa_F2620)



Authors:  
Barry Canton [bcanton@mit.edu]  
Anna Labno [labnoa@mit.edu]

Last Update: 15 January 2007

## Description

A transcription factor (LuxR, BBa\_C0062) that is active in the presence of cell-cell signaling molecule 3OC<sub>6</sub>HSL is controlled by a TetR-regulated operator (BBa\_R0040). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input signal such as aTc can be used to produce a Boolean AND function.

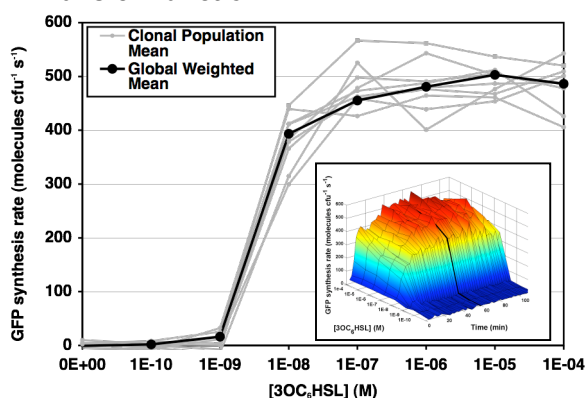
## Characteristics

**Input Swing:** 1E-9 to 1E-6 M 3OC<sub>6</sub>HSL, exogenous  
**Output Swing:** 0±1 to 503±1 GFP molecules cfu<sup>-1</sup> s<sup>-1</sup>  
**Switch Point:** 7±1 nM 3OC<sub>6</sub>HSL, exogenous  
**LH Response:** 9 min (t<sub>50%</sub>), 27 min (t<sub>90%</sub>)

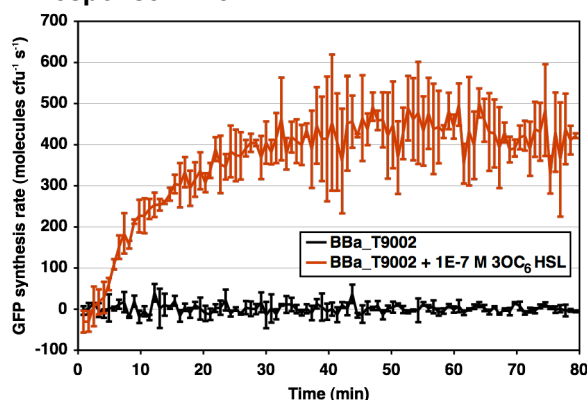
## Key Parts

BBa\_R0040: TetR-regulated operator  
BBa\_C0062: luxR ORF  
BBa\_R0062: LuxR-regulated operator

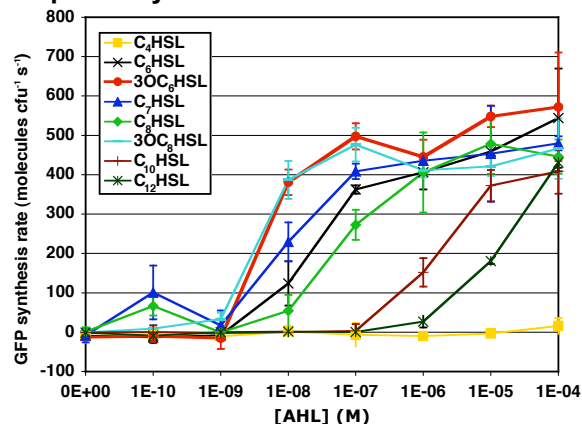
## Transfer Function\*



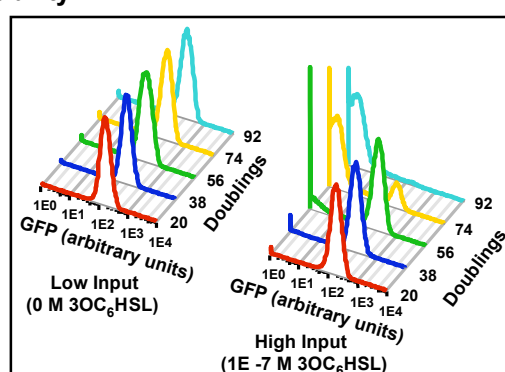
## Response Time\*



## Specificity\*



## Stability\*\*



## Demand (low/high input)

**Translational:** 256/8048 ribosomes cfu<sup>-1</sup>  
3.8E3/1.2E5 charged tRNA cfu<sup>-1</sup> s<sup>-1</sup>

## Compatibility

**Chassis:** Compatible with MC4100, MG1655, and DH5α  
**Plasmids:** Compatible with pSB3K3 and pSB1A2  
**Devices:** Compatible with E0240, E0430 and E0434  
Crosstalk with systems containing TetR (C0040)  
**Signaling:** Crosstalk with input molecules similar to 3OC<sub>6</sub>HSL

## Stability (low/high input)

**Genetic:** >92/74 replication events\*\*  
**Performance:** >92/74 replication events\*\*  
**Conditions (abridged)**  
**Output:** Indirect via BBa\_E0240  
**Vector:** pSB3K3  
**Chassis:** MG1655  
**Culture:** Supplemented M9, 37°C  
**\*Equipment:** PE Victor3 plate reader  
**\*\*Equipment:** BD FACScan cytometer

Signaling Devices

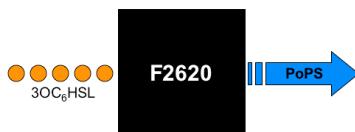
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# BBa\_F2620

3OC<sub>6</sub>HSL → PoPS Receiver

[http://parts.mit.edu/registry/index.php/Part:BBa\\_F2620](http://parts.mit.edu/registry/index.php/Part:BBa_F2620)



Authors:  
Barry Canton [bcanton@mit.edu]  
Anna Labno [labnoa@mit.edu]

Last Update: 15 January 2007

## Description

A transcription factor (LuxR, BBa\_C0062) that is active in the presence of cell-cell signaling molecule 3OC<sub>6</sub>HSL is controlled by a TetR-regulated operator (BBa\_R0040). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input signal such as aTc can be used to produce a Boolean AND function.

## Characteristics

**Input Swing:** 1E-9 to 1E-6 M 3OC<sub>6</sub>HSL, exogenous

**Output Swing:** 0±1 to 503±1 GFP molecules cfu<sup>-1</sup> s<sup>-1</sup>

**Switch Point:** 7±1 nM 3OC<sub>6</sub>HSL, exogenous

**LH Response:** 9 min (t<sub>50%</sub>), 27 min (t<sub>90%</sub>)

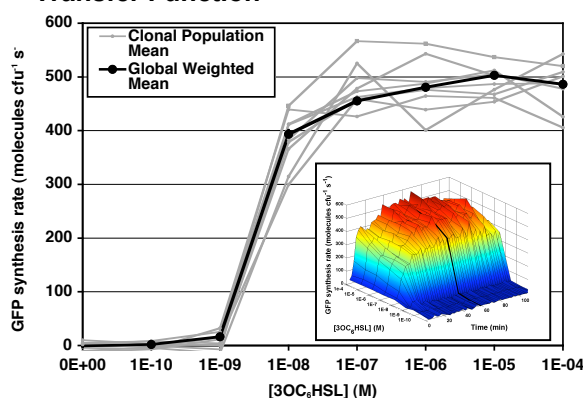
## Key Parts

BBa\_R0040: TetR-regulated operator

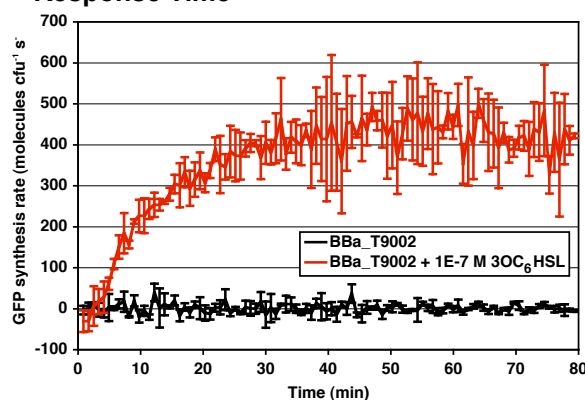
BBa\_C0062: luxR ORF

BBa\_R0062: LuxR-regulated operator

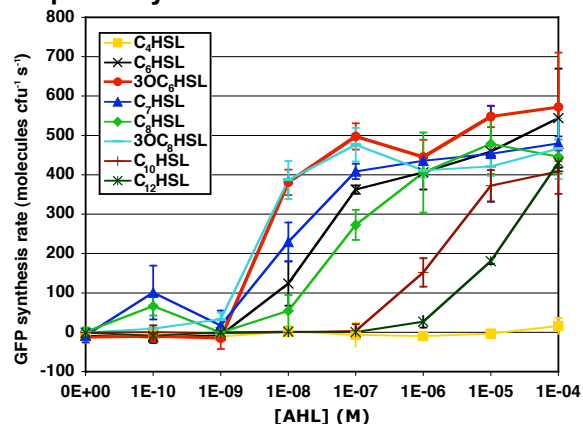
## Transfer Function\*



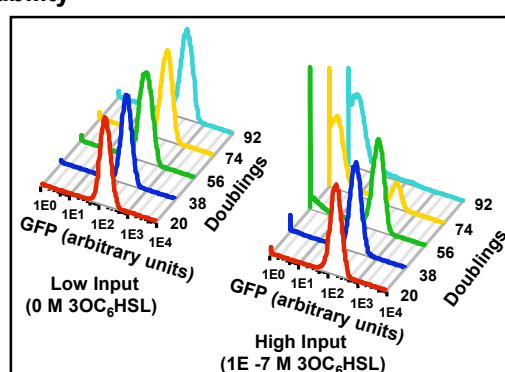
## Response Time\*



## Specificity\*



## Stability\*\*



Signaling Devices

## Demand (low/high input)

**Translational:** 256/8048 ribosomes cfu<sup>-1</sup>  
3.8E3/1.2E5 charged tRNA cfu<sup>-1</sup> s<sup>-1</sup>

## Compatibility

**Chassis:** Compatible with MC4100, MG1655, and DH5α

**Plasmids:** Compatible with pSB3K3 and pSB1A2

**Devices:** Compatible with E0240, E0430 and E0434

Crosstalk with systems containing TetR (C0040)

**Signaling:** Crosstalk with input molecules similar to 3OC<sub>6</sub>HSL

## Stability (low/high input)

**Genetic:** >92/74 replication events\*\*

**Performance:** >92/74 replication events\*\*

## Conditions (abridged)

**Output:** Indirect via BBa\_E0240

**Vector:** pSB3K3

**Chassis:** MG1655

**Culture:** Supplemented M9, 37°C

**\*Equipment:** PE Victor3 plate reader

**\*\*Equipment:** BD FACScan cytometer

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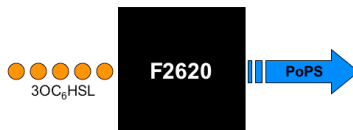
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# BBa\_F2620

3OC<sub>6</sub>HSL → PoPS Receiver

[http://parts.mit.edu/registry/index.php/Part:BBa\\_F2620](http://parts.mit.edu/registry/index.php/Part:BBa_F2620)



Authors:  
Barry Canton [bcanton@mit.edu]  
Anna Labno [labnoa@mit.edu]

Last Update: 15 January 2007

## Description

A transcription factor (LuxR, BBa\_C0062) that is active in the presence of cell-cell signaling molecule 3OC<sub>6</sub>HSL is controlled by a TetR-regulated operator (BBa\_R0040). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input signal such as aTc can be used to produce a Boolean AND function.

## Characteristics

**Input Swing:** 1E-9 to 1E-6 M 3OC<sub>6</sub>HSL, exogenous

**Output Swing:** 0±1 to 503±1 GFP molecules cfu<sup>-1</sup> s<sup>-1</sup>

**Switch Point:** 7±1 nM 3OC<sub>6</sub>HSL, exogenous

**LH Response:** 9 min (t<sub>50%</sub>), 27 min (t<sub>90%</sub>)

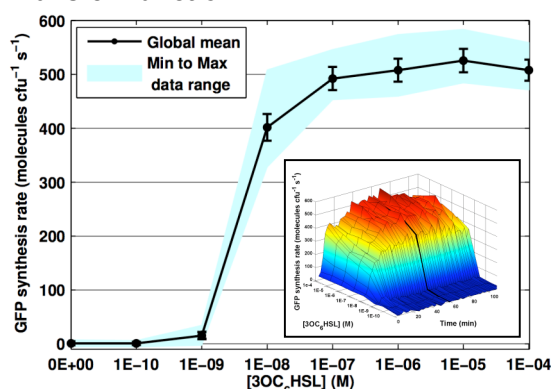
## Key Parts

BBa\_R0040: TetR-regulated operator

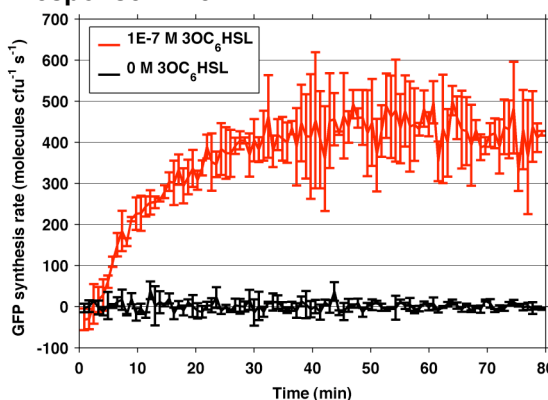
BBa\_C0062: luxR ORF

BBa\_R0062: LuxR-regulated operator

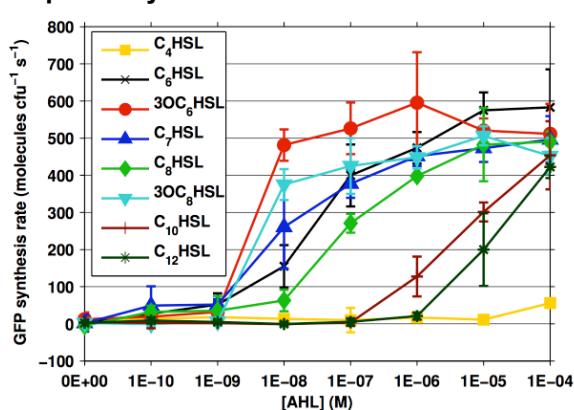
## Transfer Function\*



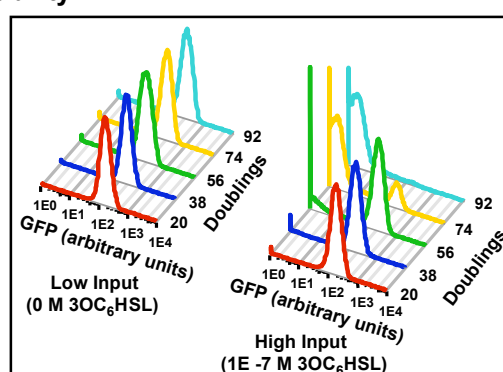
## Response Time\*



## Specificity\*



## Stability\*\*



## Demand (low/high input)

**Translational:** 256/8048 ribosomes cfu<sup>-1</sup>  
3.8E3/1.2E5 charged tRNA cfu<sup>-1</sup> s<sup>-1</sup>

## Stability (low/high input)

**Genetic:** >92/74 replication events\*\*

**Performance:** >92/74 replication events\*\*

## Conditions (abridged)

**Output:** Indirect via BBa\_E0240

**Vector:** pSB3K3

**Chassis:** MG1655

**Culture:** Supplemented M9, 37°C

**\*Equipment:** PE Victor3 plate reader

**\*\*Equipment:** BD FACScan cytometer

## Compatibility

**Chassis:** Compatible with MC4100, MG1655, and DH5α

**Plasmids:** Compatible with pSB3K3 and pSB1A2

**Devices:** Compatible with E0240, E0430 and E0434

Crosstalk with systems containing TetR (C0040)

**Signaling:** Crosstalk with input molecules similar to 3OC<sub>6</sub>HSL

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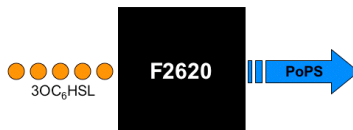
License: Public

Signaling Devices

# BBa\_F2620

3OC<sub>6</sub>HSL → PoPS Receiver

[http://parts.mit.edu/registry/index.php/Part:BBa\\_F2620](http://parts.mit.edu/registry/index.php/Part:BBa_F2620)



Authors:  
Barry Canton [bcanton@mit.edu]  
Anna Labno [labnoa@mit.edu]

Last Update: 15 January 2007

## Description

A transcription factor (LuxR, BBa\_C0062) that is active in the presence of cell-cell signaling molecule 3OC<sub>6</sub>HSL is controlled by a TetR-regulated operator (BBa\_R0040). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input signal such as aTc can be used to produce a Boolean AND function.

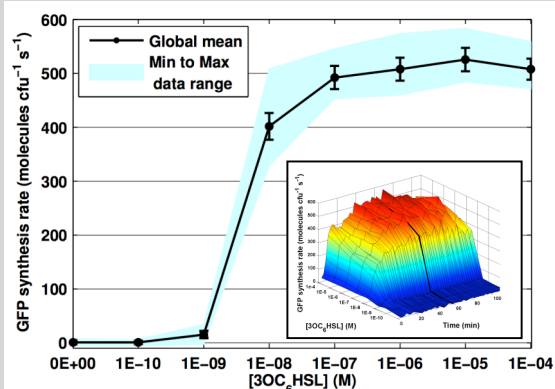
## Parts

R0040 B0034 C0062 B0015 R0062



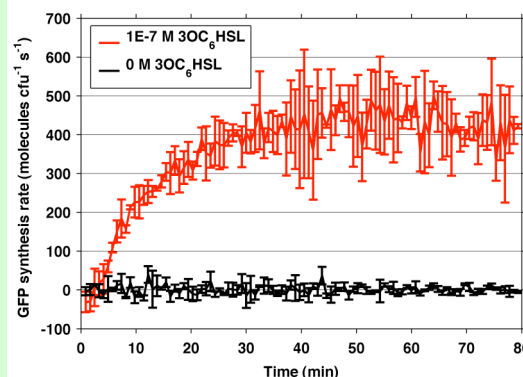
BBa\_C0062: luxR ORF  
BBa\_R0040: LuxR-regulated operator  
BBa\_R0040: TetR-regulated operator

## Transfer Function\*



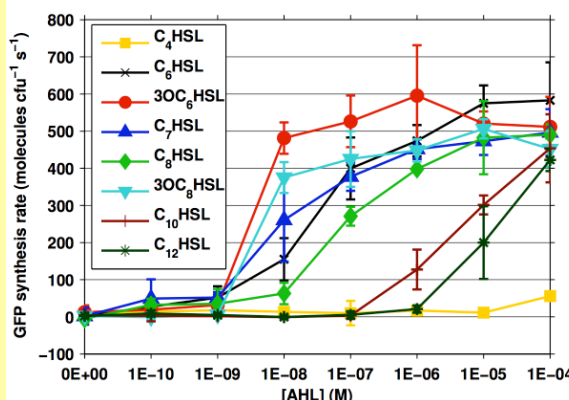
Input Swing: 1E-9 to 1E-6 M 3OC<sub>6</sub>HSL  
Output Swing: 0±1 to 503±1 GFP cfu<sup>-1</sup> s<sup>-1</sup>  
Switch Point: 7±1 nM 3OC<sub>6</sub>HSL, exogenous

## Response Time\*



LH Response: 9 min (t<sub>50%</sub>), 27 min (t<sub>90%</sub>)

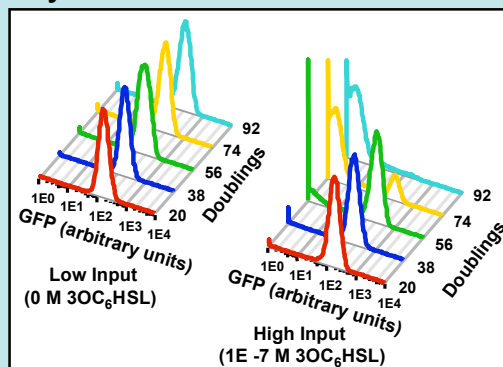
## Specificity\*



## Demonstrated Compatibility

Chassis: MC4100, MG1655, and DH5α  
Plasmids: pSB3K3 and pSB1A2  
Devices: E0240, E0430 and E0434  
Crosstalk with systems containing C0040

## Stability\*\*



## Stability (low/high input)

Genetic: >92/74 replication events\*\*  
Performance: >92/74 replication events\*\*

## Output Demand (low/high input)

Translational: 256/8048 ribosomes cfu<sup>-1</sup>  
3.8E3/1.2E5 charged tRNA cfu<sup>-1</sup> s<sup>-1</sup>

## Conditions (abridged)

Output: Indirect via BBa\_E0240  
Vector: pSB3K3  
\*Equipment: PE Victor3 plate reader

Culture: Supplemented M9, 37°C  
Chassis: MG1655  
\*\*Equipment: BD FACScan cytometer

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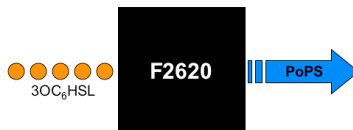
Signaling Devices



# BBa\_F2620

3OC<sub>6</sub>HSL → PoPS Receiver

[http://parts.mit.edu/registry/index.php/Part:BBa\\_F2620](http://parts.mit.edu/registry/index.php/Part:BBa_F2620)



Authors:  
Barry Canton [bcanton@mit.edu]  
Anna Labno [labnoa@mit.edu]

Last Update: 15 January 2007

## Description

A transcription factor (LuxR, BBa\_C0062) that is active in the presence of cell-cell signaling molecule 3OC<sub>6</sub>HSL is controlled by a TetR-regulated operator (BBa\_R0040). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input signal such as aTc can be used to produce a Boolean AND function.

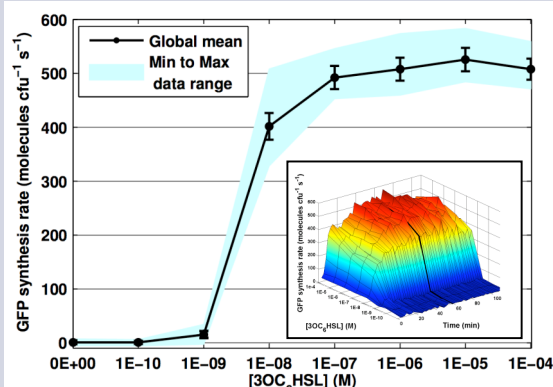
## Parts

R0040 B0034 C0062 B0015 R0062



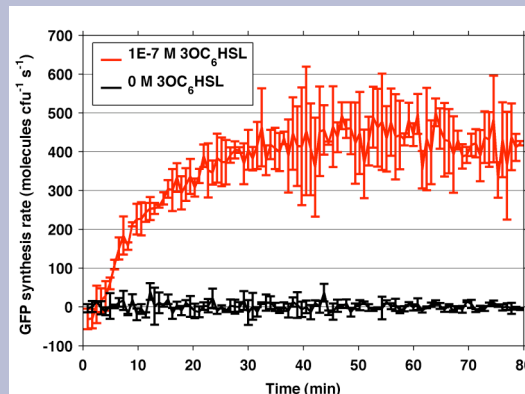
BBa\_C0062: luxR ORF  
BBa\_R0040: LuxR-regulated operator  
BBa\_R0040: TetR-regulated operator

## Transfer Function\*



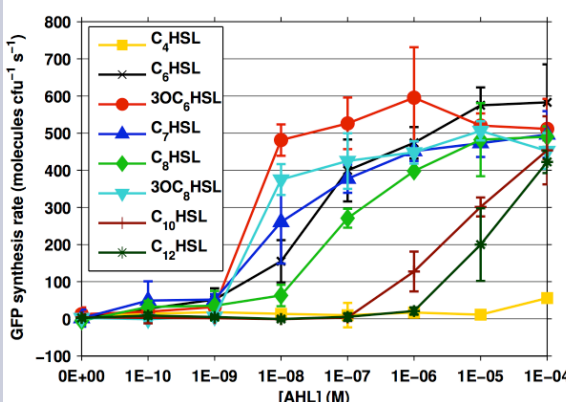
Input Swing: 1E-9 to 1E-6 M 3OC<sub>6</sub>HSL  
Output Swing: 0±1 to 503±1 GFP cfu<sup>-1</sup> s<sup>-1</sup>  
Switch Point: 7±1 nM 3OC<sub>6</sub>HSL, exogenous

## Response Time\*



LH Response: 9 min (t<sub>50%</sub>), 27 min (t<sub>90%</sub>)

## Specificity\*



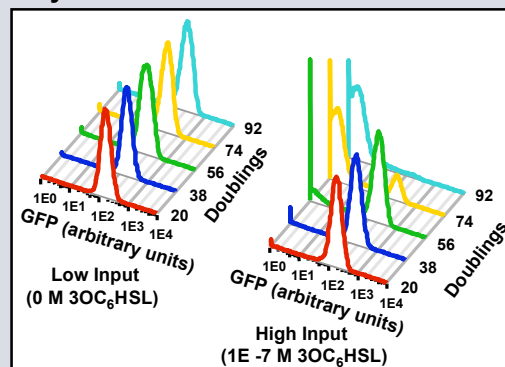
## Known Compatibility

Chassis: MC4100, MG1655, and DH5α  
Plasmids: pSB3K3 and pSB1A2  
Devices: E0240, E0430 and E0434  
Crosstalk with systems containing C0040

## Conditions (abridged)

Output: Indirect via BBa\_E0240  
Vector: pSB3K3  
\*Equipment: PE Victor3 plate reader

## Stability\*\*



## Stability (low/high input)

Genetic: >92/74 replication events\*\*  
Performance: >92/74 replication events\*\*

## Output Demand (low/high input)

Translational: 256/8048 ribosomes cfu<sup>-1</sup>  
3.8E3/1.2E5 charged tRNA cfu<sup>-1</sup> s<sup>-1</sup>

Culture: Supplemented M9, 37°C  
Chassis: MG1655  
\*\*Equipment: BD FACScan cytometer

Signaling Devices

Registry of Standard Biological Parts

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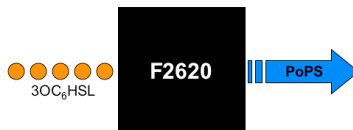
License: Public



# BBa\_F2620

3OC<sub>6</sub>HSL → PoPS Receiver

[http://parts.mit.edu/registry/index.php/Part:BBa\\_F2620](http://parts.mit.edu/registry/index.php/Part:BBa_F2620)



Authors:  
Barry Canton [bcanton@mit.edu]  
Anna Labno [labnoa@mit.edu]

Last Update: 15 January 2007

## Description

A transcription factor (LuxR, BBa\_C0062) that is active in the presence of cell-cell signaling molecule 3OC<sub>6</sub>HSL is controlled by a TetR-regulated operator (BBa\_R0040). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input signal such as aTc can be used to produce a Boolean AND function.

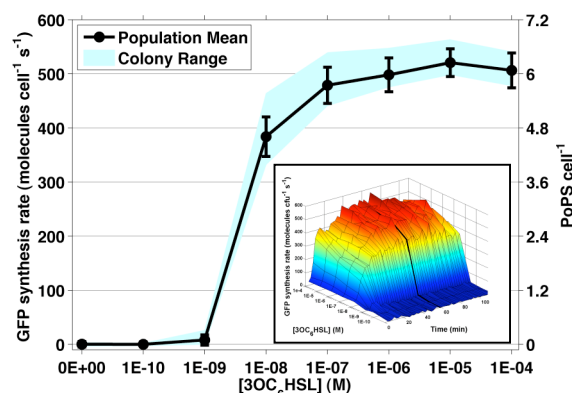
## Parts

R0040 B0034 C0062 B0015 R0062



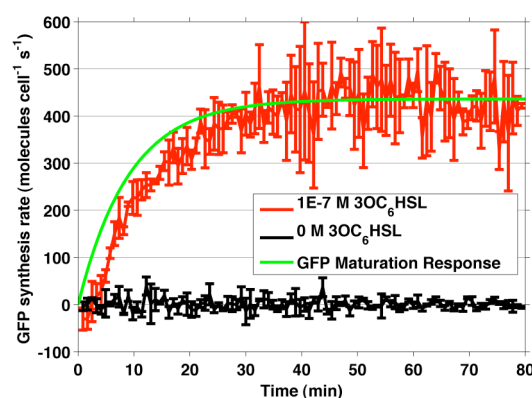
BBa\_C0062: luxR ORF  
BBa\_R0040: LuxR-regulated operator  
BBa\_R0040: TetR-regulated operator

## Transfer Function\*



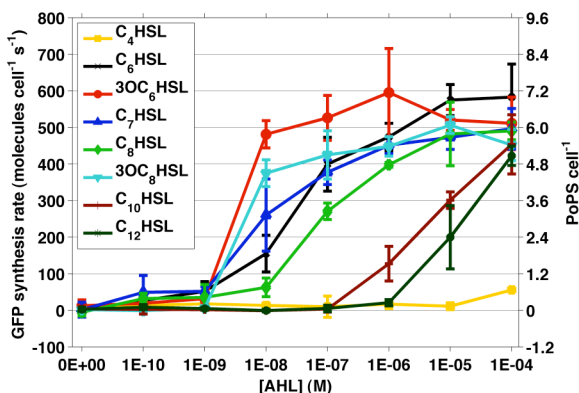
Input Swing: 1E-09 to 1E-06 M 3OC<sub>6</sub>HSL  
Output Swing: 0.2 to 6 PoPS cell<sup>-1</sup>  
Switch Point: 6E-09 ± 1E-09 M 3OC<sub>6</sub>HSL

## Response Time\*



First-order linear time constant: 8 ± 1 min  
(measured GFP maturation time constant: 6 ± 1 min)

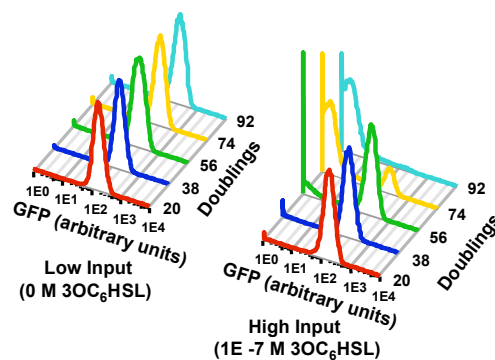
## Specificity\*



## Known Compatibility

Chassis: MC4100, MG1655, and DH5α  
Plasmids: pSB3K3 and pSB1A2  
Devices: E0240, E0430 and E0434  
Crosstalk with systems containing C0040

## Stability\*\*



## Stability (low/high input)

Genetic: >92/<74 replication events\*\*  
Performance: >92/<74 replication events\*\*

## Output Demand (low/high input)

Translational: 100/8000 ribosomes cell<sup>-1</sup>  
2E+03/1.2E+05 aa-tRNA cell<sup>-1</sup> s<sup>-1</sup>

## Conditions (abridged)

Output: Indirect via BBa\_E0240  
Vector: pSB3K3  
\*Equipment: PE Victor3 plate reader

Culture: Supplemented M9, 37°C  
Chassis: MG1655  
\*\*Equipment: BD FACScan cytometer

Signaling Devices

Registry of Standard Biological Parts

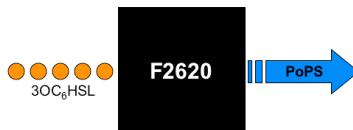
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# BBa\_F2620

3OC<sub>6</sub>HSL → PoPS Receiver

[http://parts.mit.edu/registry/index.php/Part:BBa\\_F2620](http://parts.mit.edu/registry/index.php/Part:BBa_F2620)



Authors:  
Barry Canton [bcanton@mit.edu]  
Anna Labno [labnoa@mit.edu]

Last Update: 15 January 2007

## Description

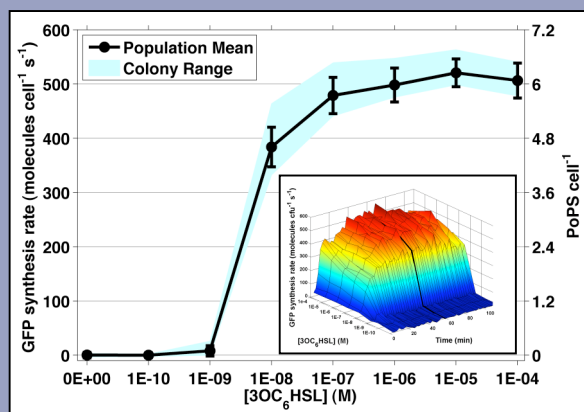
A transcription factor (LuxR, BBa\_C0062) that is active in the presence of cell-cell signaling molecule 3OC<sub>6</sub>HSL is controlled by a TetR-regulated operator (BBa\_R0040). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input signal such as aTc can be used to produce a Boolean AND function.

## Parts

R0040 B0034 C0062 B0015 R0062



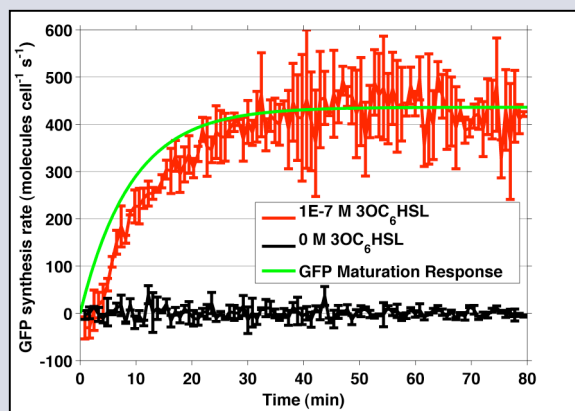
BBa\_C0062: luxR ORF  
BBa\_R0040: LuxR-regulated operator  
BBa\_R0040: TetR-regulated operator



Input Swing: 1E-09 to 1E-06 M 3OC<sub>6</sub>HSL

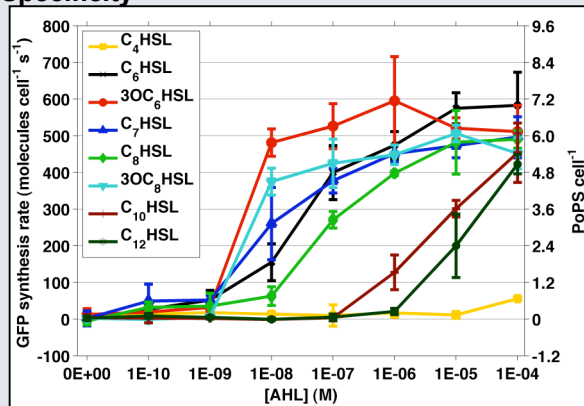
Output Swing: 0.2 to 6 PoPS cell<sup>-1</sup>

Switch Point: 6E-09 ± 1E-09 M 3OC<sub>6</sub>HSL



First-order linear time constant: 8±1 min  
(measured GFP maturation time constant: 6±1 min)

## Specificity\*



## Known Compatibility

Chassis: MC4100, MG1655, and DH5α

Plasmids: pSB3K3 and pSB1A2

Devices: E0240, E0430 and E0434

Crosstalk with systems containing C0040

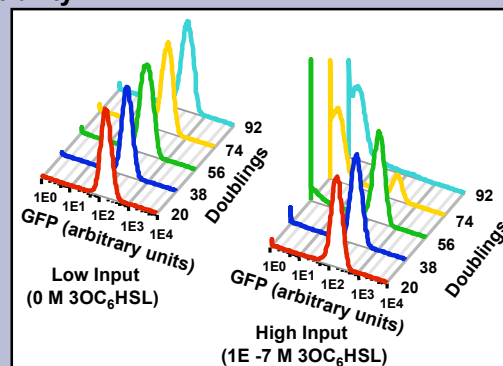
## Transcriptional Output Demand (low/high input)

Substrate: 0.2xNt / 6xNt nucleotides cell<sup>-1</sup> s<sup>-1</sup>

Enzyme: (0.2÷45)xNt / (6÷45)xNt RNAP cell<sup>-1</sup>

(Nt = downstream transcript length)

## Stability\*\*



## Stability (low/high input)

Genetic: >92/<74 replication events\*\*

Performance: >92/<74 replication events\*\*

## Conditions (abridged)

Output: Indirect via BBa\_E0240

Culture: Supplemented M9, 37°C

Vector: pSB3K3

Chassis: MG1655

\*Equipment: PE Victor3 plate reader

\*\*Equipment: BD FACScan cytometer

Signaling Devices

Registry of Standard Biological Parts

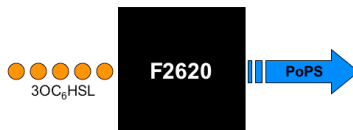
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# BBa\_F2620

3OC<sub>6</sub>HSL → PoPS Receiver

[http://parts.mit.edu/registry/index.php/Part:BBa\\_F2620](http://parts.mit.edu/registry/index.php/Part:BBa_F2620)



Authors:  
Barry Canton [bcanton@mit.edu]  
Anna Labno [labnoa@mit.edu]

Last Update: 13 September 2007

## Description

A transcription factor (LuxR, BBa\_C0062) that is active in the presence of cell-cell signaling molecule 3OC<sub>6</sub>HSL is controlled by a TetR-regulated operator (BBa\_R0040). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input signal such as aTc can be used to produce a Boolean AND function.

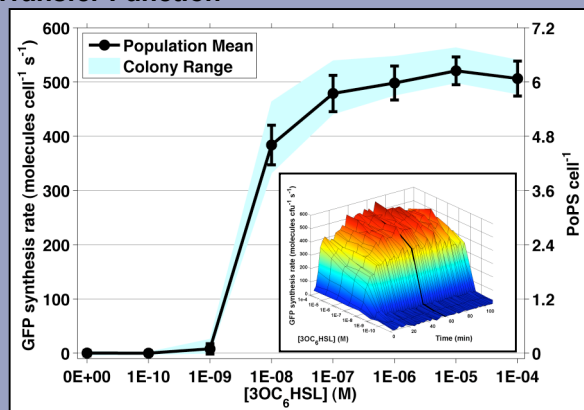
## Parts

R0040 B0034 C0062 B0015 R0062



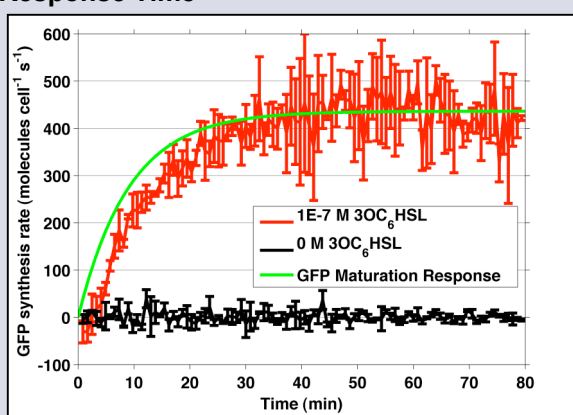
BBa\_C0062: luxR ORF  
BBa\_R0040: LuxR-regulated operator  
BBa\_R0040: TetR-regulated operator

## Transfer Function\*



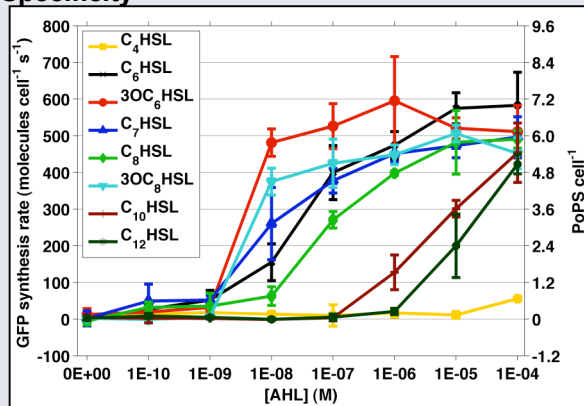
Input Swing: 1E-09 to 1E-06 M 3OC<sub>6</sub>HSL  
Output Swing: 0.2 to 6 PoPS cell<sup>-1</sup>  
Switch Point: 6E-09 ± 1E-09 M 3OC<sub>6</sub>HSL

## Response Time\*



First-order linear time constant: 8±1 min  
(measured GFP maturation time constant: 6±1 min)

## Specificity\*



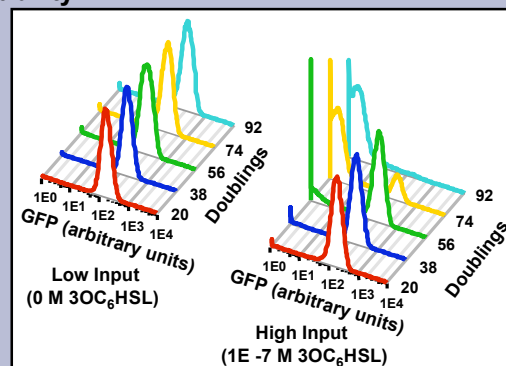
## Known Compatibility

Chassis: MC4100, MG1655, and DH5α  
Plasmids: pSB3K3 and pSB1A2  
Devices: E0240, E0430 and E0434  
Crosstalk with systems containing C0040

## Transcriptional Output Demand (low/high input)

Substrate: 0.2xNt / 6xNt nucleotides cell<sup>-1</sup> s<sup>-1</sup>  
Enzyme: (0.2÷45)xNt / (6÷45)xNt RNAP cell<sup>-1</sup>  
(Nt = downstream transcript length)

## Stability\*\*



## Stability (low/high input)

Genetic: >92/<74 replication events\*\*

Performance: >92/<74 replication events\*\*

## Conditions (abridged)

Output: Indirect via BBa\_E0240

Culture: Supplemented M9, 37°C

Vector: pSB3K3

Chassis: MG1655

\*Equipment: PE Victor3 plate reader

\*\*Equipment: BD FACScan cytometer

Signaling Devices

Registry of Standard Biological Parts

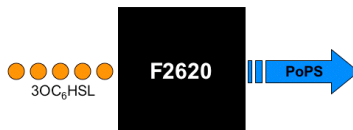
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# BBa\_F2620

3OC<sub>6</sub>HSL → PoPS Receiver

[http://parts.mit.edu/registry/index.php/Part:BBa\\_F2620](http://parts.mit.edu/registry/index.php/Part:BBa_F2620)



Authors:  
Barry Canton [bcanton@mit.edu]  
Anna Labno [labnoa@mit.edu]

Last Update: 15 January 2007

## Description

A transcription factor (LuxR, BBa\_C0062) that is active in the presence of cell-cell signaling molecule 3OC<sub>6</sub>HSL is controlled by a TetR-regulated operator (BBa\_R0040). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input signal such as aTc can be used to produce a Boolean AND function.

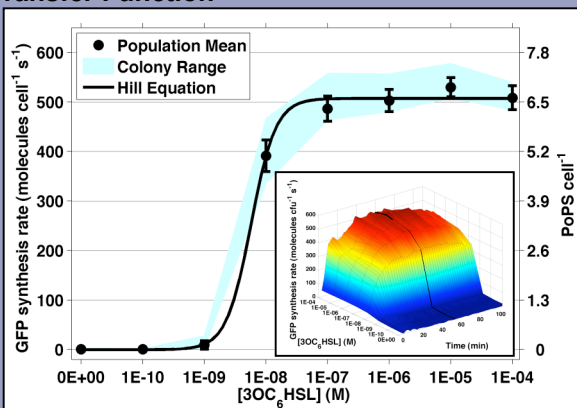
## Parts

R0040 B0034 C0062 B0015 R0062



BBa\_C0062: luxR ORF  
BBa\_R0040: LuxR-regulated operator  
BBa\_R0040: TetR-regulated operator

## Transfer Function\*

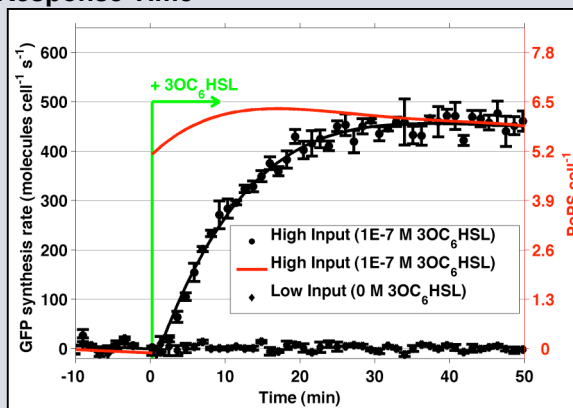


$$P_{max}: 6.6 \text{ PoPS cell}^{-1}$$

$$K: 6E-09 \text{ M } 3OC_6HSL \quad PoPS = P_{max} \frac{[3OC_6HSL]^n}{K^n + [3OC_6HSL]^n}$$

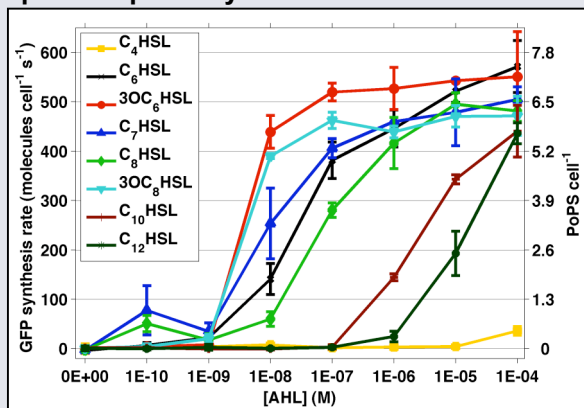
$$n: 2$$

## Response Time\*



Response Time: <1 min

## Input Compatibility\*



## Part Compatibility

Chassis: MC4100, MG1655, and DH5α

Plasmids: pSB3K3 and pSB1A2

Devices: E0240, E0430 and E0434

Crosstalk with systems containing C0040

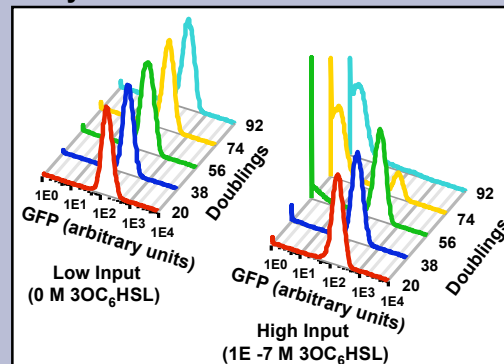
## Transcriptional Output Demand (low/high input)

Substrate: 0.2xNt / 6xNt nucleotides cell<sup>-1</sup> s<sup>-1</sup>

Enzyme: (0.2÷45)xNt / (6÷45)xNt RNAP cell<sup>-1</sup>

(Nt = downstream transcript length)

## Stability\*\*



Genetic: >92/<74 replication events\*\*

Performance: >92/<74 replication events\*\*  
(low/high input)

## Conditions (abridged)

Output: PoPS measured via BBa\_E0240

Culture: Supplemented M9, 37°C

Vector: pSB3K3

Chassis: MG1655

\*Equipment: PE Victor3 plate reader

\*\*Equipment: BD FACScan cytometer

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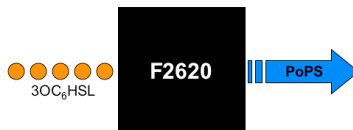
Signaling Devices



# BBa\_F2620

3OC<sub>6</sub>HSL → PoPS Receiver

[http://parts.mit.edu/registry/index.php/Part:BBa\\_F2620](http://parts.mit.edu/registry/index.php/Part:BBa_F2620)



Authors:  
Barry Canton [bcanton@mit.edu]  
Anna Labno [labnoa@mit.edu]

Last Update: 19 October 2007

## Description

A transcription factor (LuxR, BBa\_C0062) that is active in the presence of cell-cell signaling molecule 3OC<sub>6</sub>HSL is controlled by a TetR-regulated operator (BBa\_R0040). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input signal such as aTc can be used to produce a Boolean AND function.

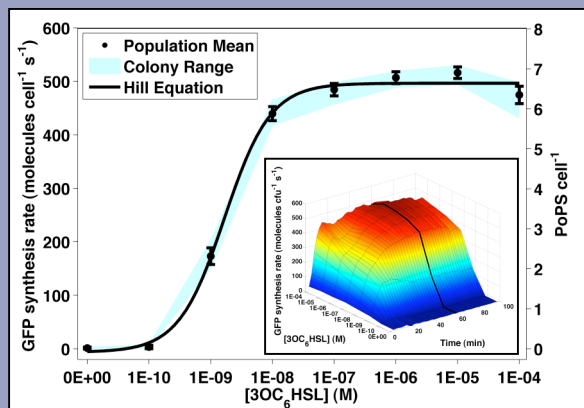
## Parts

R0040 B0034 C0062 B0015 R0062



BBa\_C0062: luxR ORF  
BBa\_R0040: LuxR-regulated operator  
BBa\_R0040: TetR-regulated operator

## Transfer Function\*



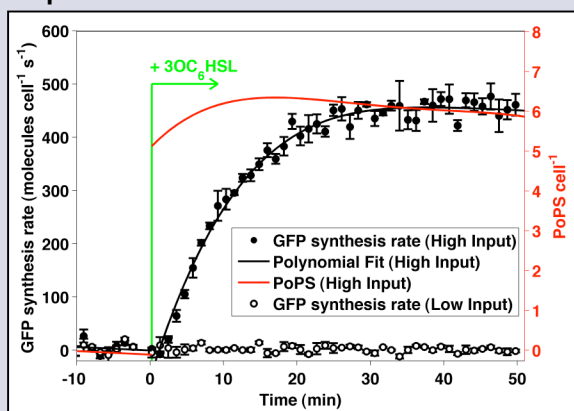
$$P_{max}: 6.7 \text{ PoPS cell}^{-1}$$

$$K: 2\text{E-}09 \text{ M } 3\text{OC}_6\text{HSL}$$

$$n: 1.2$$

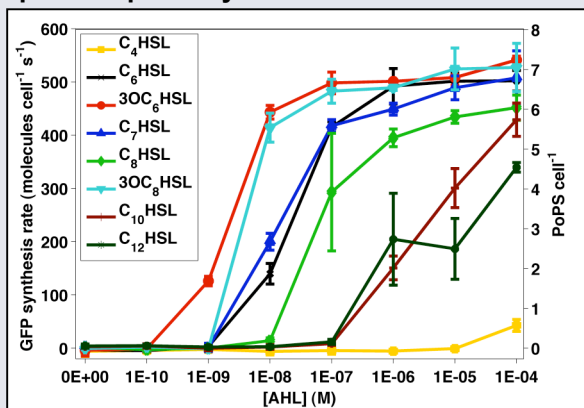
$$P_{out} = P_{max} \frac{[3\text{OC}_6\text{HSL}]^n}{K^n + [3\text{OC}_6\text{HSL}]^n}$$

## Response Time\*



BBa\_F2620 Response Time: <1 min  
(PoPS calculated from polynomial fit to GFP synthesis rate data. High/Low input - 1E-7/0 M 3OC<sub>6</sub>HSL)

## Input Compatibility\*



## Part Compatibility

Chassis: MC4100, MG1655, and DH5α

Plasmids: pSB3K3 and pSB1A2

Devices: E0240, E0430 and E0434

Crosstalk with systems containing C0040

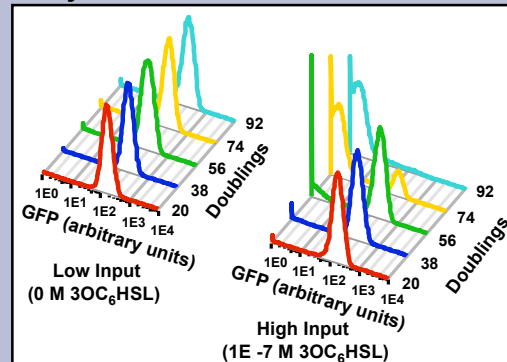
## Transcriptional Output Demand (low/high input)

Nucleotides: 0.2xNt / 6xNt nucleotides cell<sup>-1</sup> s<sup>-1</sup>

Polymerases: 4.4E-3xNt / 1.5E-1xNt RNAP cell<sup>-1</sup>

(Nt = downstream transcript length)

## Stability\*\*



Genetic: >92/<74 replication events\*\*  
Performance: >92/<74 replication events\*\*  
(low/high input)

## Conditions (abridged)

Output: PoPS measured via BBa\_E0240

Culture: Supplemented M9, 37°C

Vector: pSB3K3

Chassis: MG1655

\*Equipment: PE Victor3 plate reader

\*\*Equipment: BD FACScan cytometer

Signaling Devices

Registry of Standard Biological Parts

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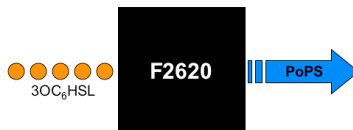
License: Public



# BBa\_F2620

3OC<sub>6</sub>HSL → PoPS Receiver

[http://parts.mit.edu/registry/index.php/Part:BBa\\_F2620](http://parts.mit.edu/registry/index.php/Part:BBa_F2620)



Authors:  
Barry Canton [bcanton@mit.edu]  
Anna Labno [labnoa@mit.edu]

Last Update: 19 October 2007

## Description

A transcription factor (LuxR, BBa\_C0062) that is active in the presence of cell-cell signaling molecule 3OC<sub>6</sub>HSL is controlled by a TetR-regulated operator (BBa\_R0040). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input signal such as aTc can be used to produce a Boolean AND function.

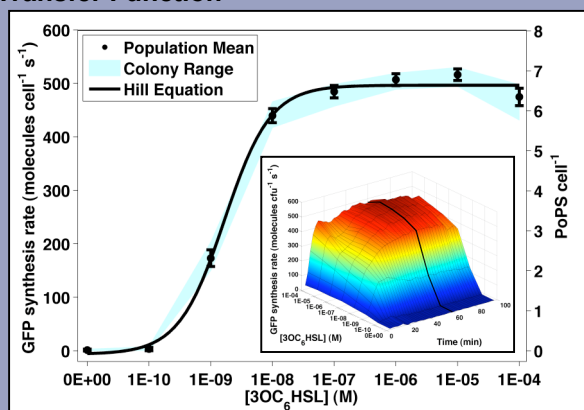
## Parts

R0040 B0034 C0062 B0015 R0062



BBa\_C0062: luxR ORF  
BBa\_R0040: LuxR-regulated operator  
BBa\_R0040: TetR-regulated operator

## Transfer Function\*



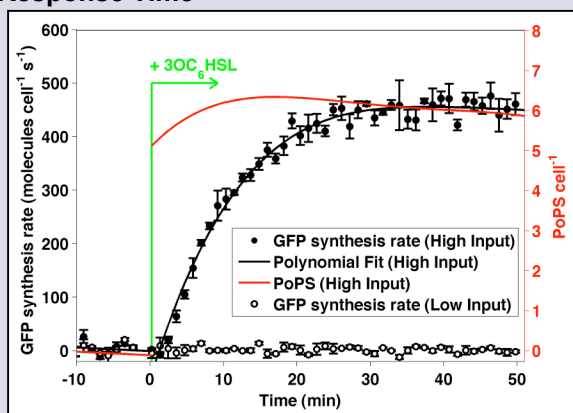
$$P_{max}: 6.7 \text{ PoPS cell}^{-1}$$

$$K: 2E-09 \text{ M } 3OC_6HSL$$

$$n: 1.2$$

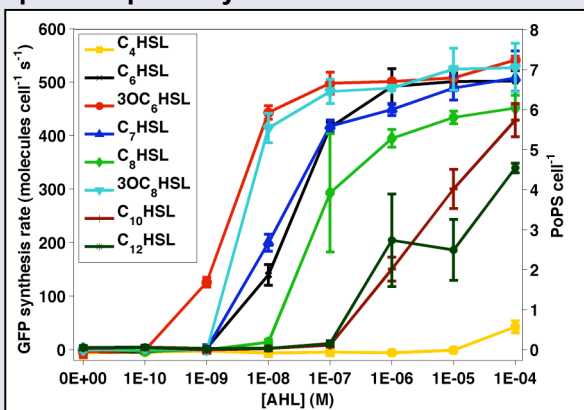
$$P_{out} = P_{max} \frac{[3OC_6HSL]^n}{K^n + [3OC_6HSL]^n}$$

## Response Time\*



BBa\_F2620 Response Time: <1 min  
(PoPS calculated from polynomial fit to GFP synthesis rate data. High/Low input - 1E-7/0 M 3OC<sub>6</sub>HSL)

## Input Compatibility\*



## Part Compatibility

Chassis: MC4100, MG1655, and DH5α

Plasmids: pSB3K3 and pSB1A2

Devices: E0240, E0430 and E0434

Crosstalk with systems containing C0040

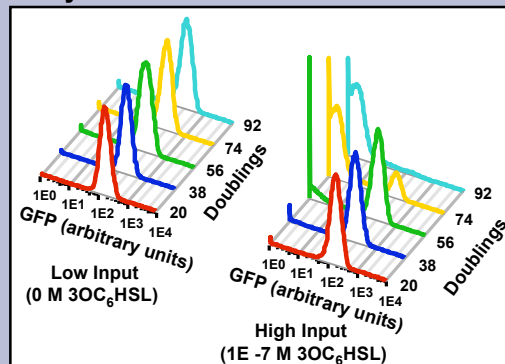
## Transcriptional Output Demand (low/high input)

Nucleotides: 0.2xNt / 6xNt nucleotides cell<sup>-1</sup> s<sup>-1</sup>

Polymerases: 4.4E-3xNt / 1.5E-1xNt RNAP cell<sup>-1</sup>

(Nt = downstream transcript length)

## Stability\*\*



Genetic: >92/<74 replication events\*\*  
Performance: >92/<74 replication events\*\*  
(low/high input)

## Conditions (abridged)

Output: PoPS measured via BBa\_E0240

Culture: Supplemented M9, 37°C

Vector: pSB3K3

Chassis: MG1655

\*Equipment: PE Victor3 plate reader

\*\*Equipment: BD FACScan cytometer

Signaling Devices

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# BBa\_F2620

3OC<sub>6</sub>HSL → PoPS Receiver

[http://parts.mit.edu/registry/index.php/Part:BBa\\_F2620](http://parts.mit.edu/registry/index.php/Part:BBa_F2620)



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Last Update: 19 October 2007

## Description

A transcription factor (LuxR, BBa\_C0062) that is active in the presence of cell-cell signaling molecule 3OC<sub>6</sub>HSL is controlled by a TetR-regulated operator (BBa\_R0040). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input signal such as aTc can be used to produce a Boolean AND function.

## Parts

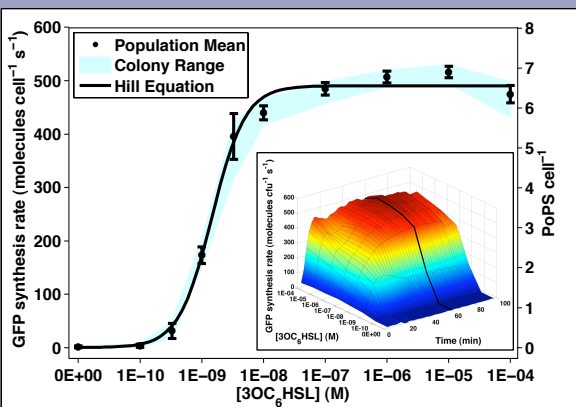


BBa\_R0040: TetR-regulated operator

BBa\_C0062: luxR ORF

BBa\_R0062: LuxR-regulated operator

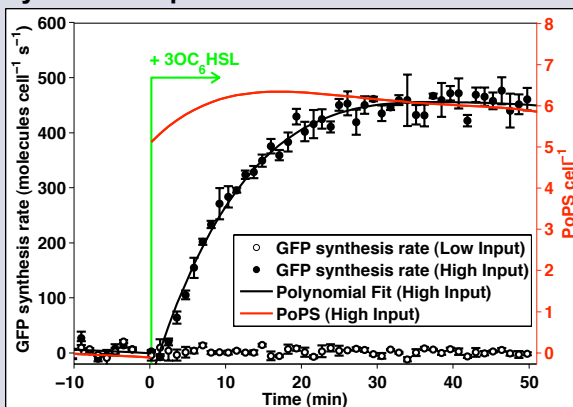
## Static Performance\*



$$P_{out} = \frac{P_{max} [3OC_6HSL]^n}{K^n + [3OC_6HSL]^n}$$

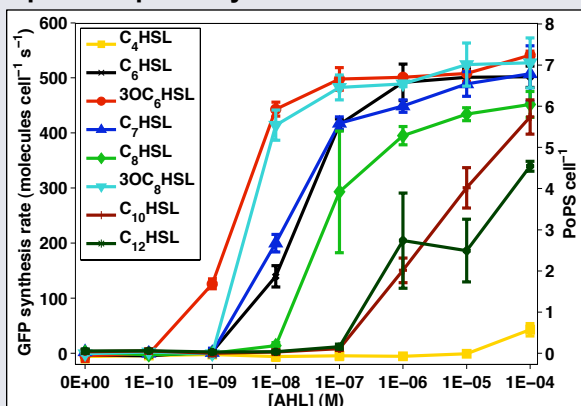
$P_{max}$ : 6.7 PoPS cell<sup>-1</sup>  
 $K$ : 1.5E-09 M 3OC<sub>6</sub>HSL  
 $n$ : 1.6

## Dynamic Response\*



BBa\_F2620 Response Time: <1 min  
 BBa\_T9002 Response Time: 6.1 min  
 Inputs: 0 M (Low), 1E-07 M (High) 3OC<sub>6</sub>HSL

## Input Compatibility\*



## Part Compatibility\*

Chassis: MC4100, MG1655, and DH5α  
 Plasmids: pSB3K3 and pSB1A2  
 Devices: E0240, E0430 and E0434

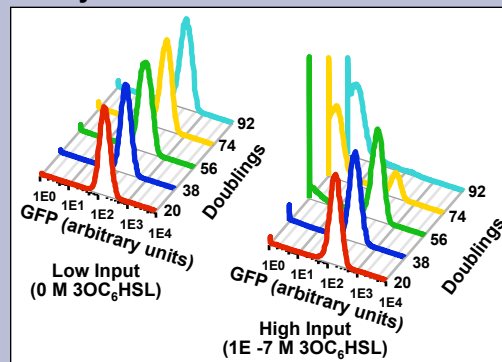
## Transcriptional Output Demand (low/high input)

Nucleotides: 0 / 6xNt nucleotides cell<sup>-1</sup> s<sup>-1</sup>

Polymerases: 0 / 1.5E-1xNt RNAP cell<sup>-1</sup>

(Nt = downstream transcript length)

## Reliability\*\*



Genetic: >92/<74 culture doublings  
 Performance: >92/<74 culture doublings (low/high input)

## Conditions (abridged)

Output: PoPS measured via BBa\_E0240  
 Culture: Supplemented M9, 37°C  
 Vector: pSB3K3  
 Chassis: MG1655  
 \*Equipment: PE Victor3 plate reader  
 \*\*Equipment: BD FACScan cytometer

Signaling Devices

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Authors:  
Barry Canton [bcanton@mit.edu]  
Anna Labno [labnoa@mit.edu]

Last Update: 9 November 2007

## Description

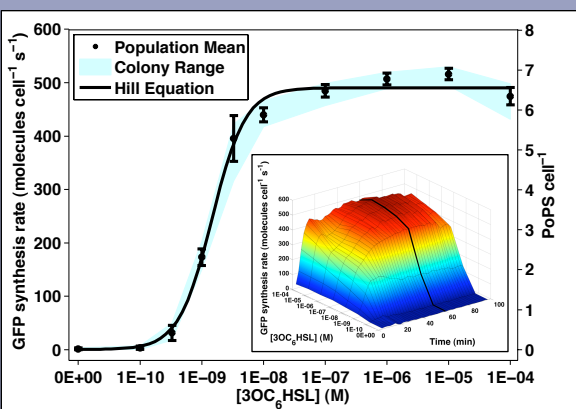
A transcription factor (LuxR, BBa\_C0062) that is active in the presence of cell-cell signaling molecule 3OC<sub>6</sub>HSL is controlled by a regulated operator (P<sub>LtetO-1</sub>, BBa\_R0040). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input signal such as aTc can be used to produce a Boolean AND function.

## Component Parts

R0040 B0034 C0062 B0015 R0062

BBa\_R0040: TetR-regulated operator  
BBa\_B0034: Ribosome Binding Site  
BBa\_C0062: luxR ORF  
BBa\_R0062: LuxR-regulated operator  
BBa\_B0015: Terminator

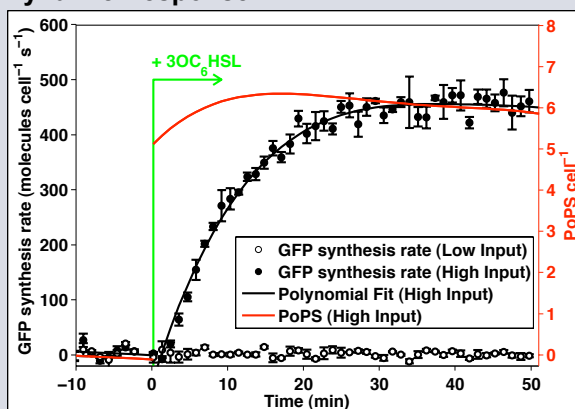
## Static Performance\*



$$P_{out} = \frac{P_{max} [3OC_6HSL]^n}{K^n + [3OC_6HSL]^n}$$

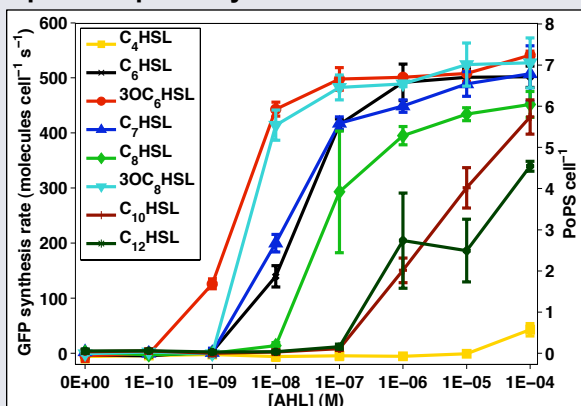
$P_{max}$ : 6.6 PoPS cell<sup>-1</sup>  
 $K$ : 1.5E-09 M 3OC<sub>6</sub>HSL  
 $n$ : 1.6

## Dynamic Response\*



BBa\_F2620 Response Time: <1 min  
BBa\_T9002 Response Time: 6±1 min  
Inputs: 0 M (Low), 1E-07 M (High) 3OC<sub>6</sub>HSL

## Input Compatibility\*



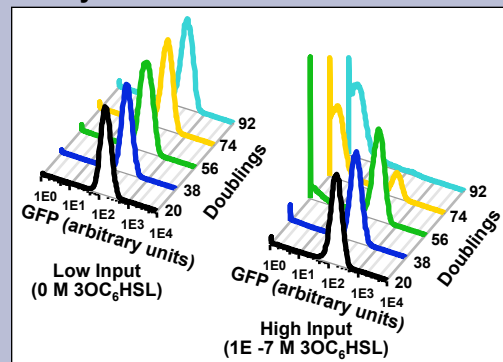
## Part Compatibility (qualitative)

Chassis: MC4100, MG1655, and DH5α  
Plasmids: pSB3K3 and pSB1A2  
Devices: E0240, E0430 and E0434

## Transcriptional Output Demand (low/high input)

Nucleotides: 0 / 6xNt nucleotides cell<sup>-1</sup> s<sup>-1</sup>  
Polymerases: 0 / 1.5E-1xNt RNAP cell<sup>-1</sup>  
(Nt = downstream transcript length)

## Reliability\*\*



Genetic: >92/>56 culture doublings  
Performance: >92/>56 culture doublings  
(low/high input during propagation)

## Conditions (abridged)

Output: PoPS measured via BBa\_E0240  
Culture: Supplemented M9, 37°C  
Plasmid: pSB3K3  
Chassis: MG1655  
\*Equipment: PE Victor3 multi-well fluorimeter  
\*\*Equipment: BD FACScan cytometer

Signaling Devices



BBa\_F2620

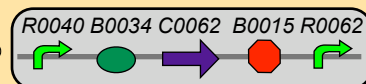


3OC<sub>6</sub>HSL -----> PoPS Receiver

### Description

A transcription factor (LuxR, BBa\_C0062) that is active in the presence of cell-cell signaling molecule 3OC<sub>6</sub>HSL is controlled by a TetR-regulated operator (BBa\_R0040). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input signal such as aTc can be used to produce a Boolean AND function.

### Sub Parts

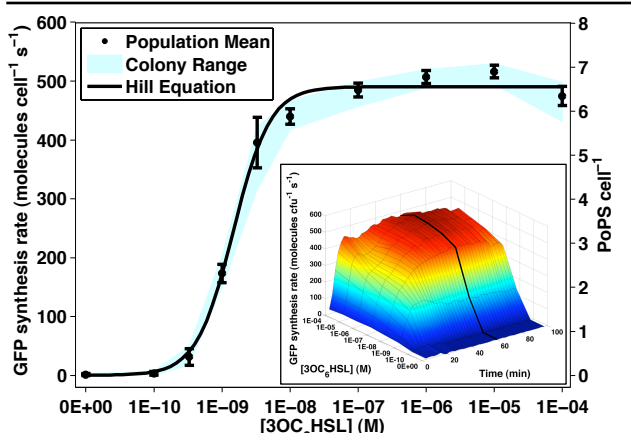


BBa\_R0040: TetR-regulated operator

BBa\_C0062: luxR ORF

BBa\_R0062: LuxR-regulated operator

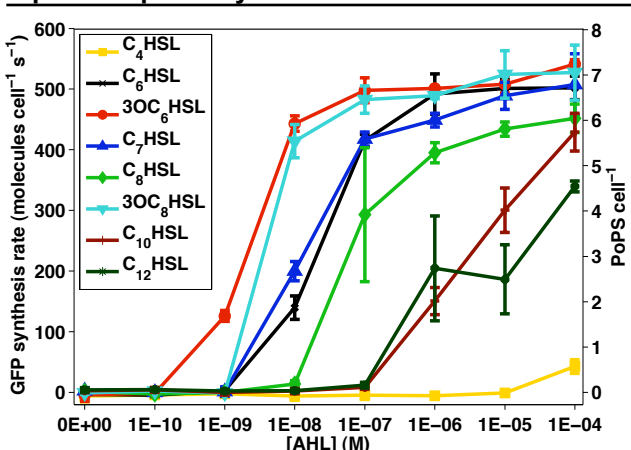
### Transfer Function\*



$$P_{out} = \frac{P_{max} [3OC_6HSL]^n}{K^n + [3OC_6HSL]^n}$$

$P_{max}$ : 6.6 PoPS cell<sup>-1</sup>  
 $K$ : 1.5E-09 M 3OC<sub>6</sub>HSL  
 $n$ : 1.6

### Input Compatibility\*



### Part Compatibility\*

Chassis: MC4100, MG1655, and DH5α

Plasmids: pSB3K3 and pSB1A2

Devices: E0240, E0430 and E0434

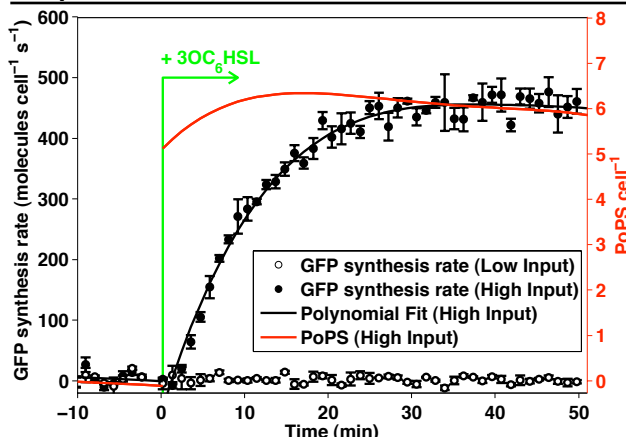
### Transcriptional Output Demand (low/high input)

Nucleotides: 0 / 6xNt nucleotides cell<sup>-1</sup> s<sup>-1</sup>

Polymerases: 0 / 1.5E-1xNt RNAP cell<sup>-1</sup>

(Nt = downstream transcript length)

### Response Time\*

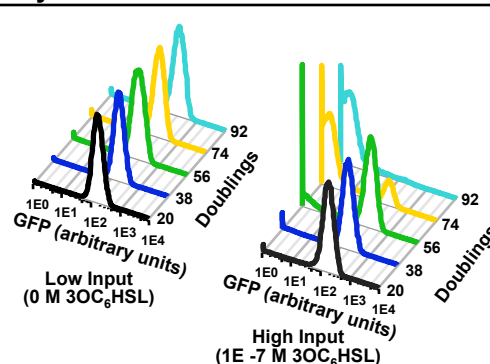


BBa\_F2620 Response Time: <1 min

BBa\_T9002 Response Time: 6.3 min

Inputs: 0 M (Low), 1E-07 M (High) 3OC<sub>6</sub>HSL

### Stability\*\*



Genetic: >92/<74 replication events\*\*

Performance: >92/<74 replication events\*\*  
(low/high input)

### Conditions (abridged)

Output: PoPS measured via BBa\_E0240

Culture: Supplemented M9, 37°C

Vector: pSB3K3

Chassis: MG1655

\*Equipment: PE Victor3 plate reader

\*\*Equipment: BD FACScan cytometer

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Barry Canton  
Ania Labno  
Updated: Oct 2007

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Signaling Devices



# BBa\_F2620

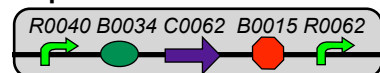
3OC<sub>6</sub>HSL → PoPS Receiver



## Description

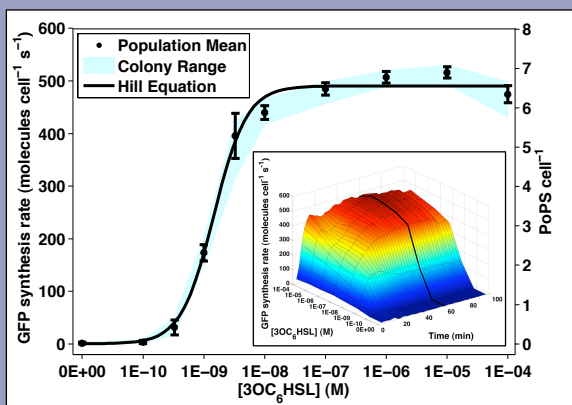
A transcription factor (LuxR, BBa\_C0062) that is active in the presence of cell-cell signaling molecule 3OC<sub>6</sub>HSL is controlled by a regulated operator (P<sub>LtetO-1</sub>, BBa\_R0040). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input signal such as aTc can be used to produce a Boolean AND function.

## Component Parts



BBa\_R0040: TetR-regulated operator  
BBa\_B0034: Ribosome Binding Site  
BBa\_C0062: luxR ORF  
BBa\_R0062: LuxR-regulated operator  
BBa\_B0015: Terminator

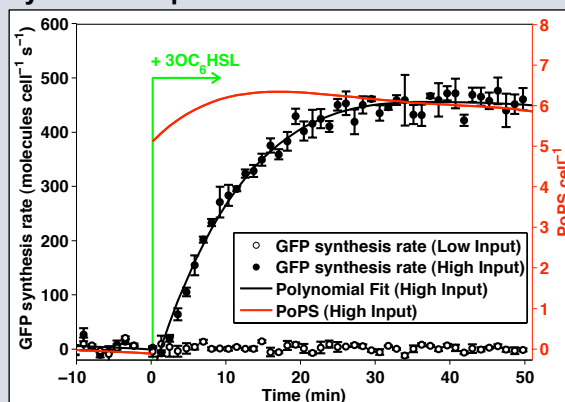
## Static Performance\*



$$P_{out} = \frac{P_{max} [3OC_6HSL]^n}{K^n + [3OC_6HSL]^n}$$

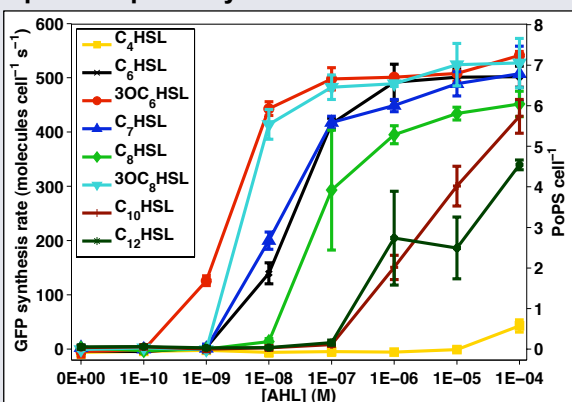
$P_{max}$ : 6.6 PoPS cell<sup>-1</sup>  
 $K$ : 1.5E-09 M 3OC<sub>6</sub>HSL  
 $n$ : 1.6

## Dynamic Response\*



BBa\_F2620 Response Time: <1 min  
BBa\_T9002 Response Time: 6±1 min  
Inputs: 0 M (Low), 1E-07 M (High) 3OC<sub>6</sub>HSL

## Input Compatibility\*



## Part Compatibility (qualitative)

Chassis: MC100, MG1655, and DH5α  
Plasmids: pSB3K3 and pSB1A2  
Devices: E0240, E0430 and E0434

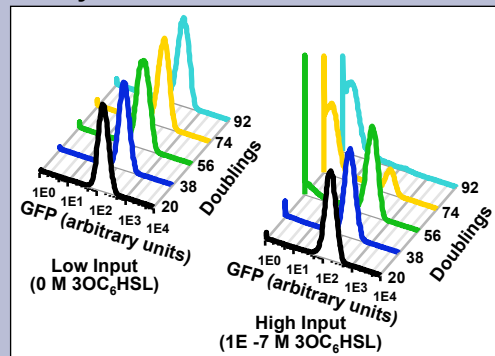
## Transcriptional Output Demand (low/high input)

Nucleotides: 0 / 6xNt nucleotides cell<sup>-1</sup> s<sup>-1</sup>

Polymerases: 0 / 1.5E-1xNt RNAP cell<sup>-1</sup>

(Nt = downstream transcript length)

## Reliability\*\*



Genetic: >92/>56 culture doublings  
Performance: >92/>56 culture doublings  
(low/high input during propagation)

## Conditions (abridged)

Output: PoPS measured via BBa\_E0240  
Culture: Supplemented M9, 37°C  
Plasmid: pSB3K3  
Chassis: MG1655  
\*Equipment: PE Victor3 multi-well fluorimeter  
\*\*Equipment: BD FACScan cytometer

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Authors: Barry Canton  
Ania Labno  
Updated: March 2008

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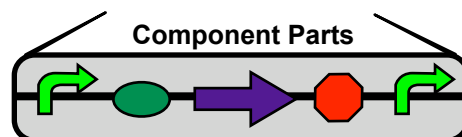
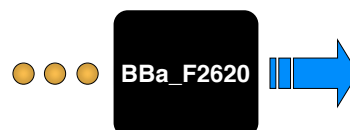


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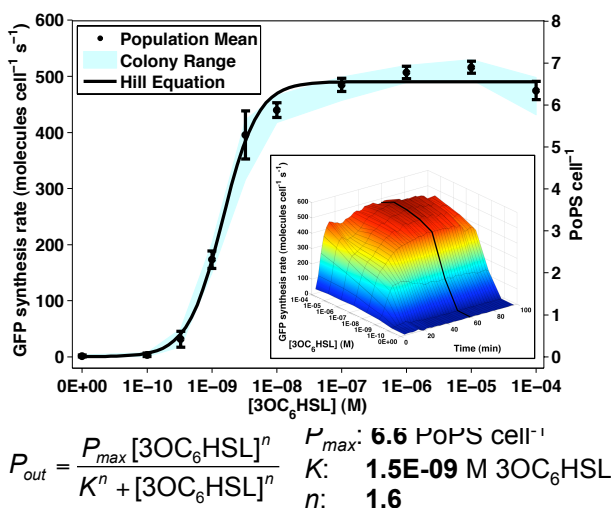
## Description

A transcription factor (LuxR, BBa\_C0062) that is active in the presence of cell-cell signaling molecule 3OC<sub>6</sub>HSL is controlled by a regulated operator (P<sub>LtetO-1</sub>, BBa\_R0040). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input signal such as aTc can be used to produce a Boolean AND function.

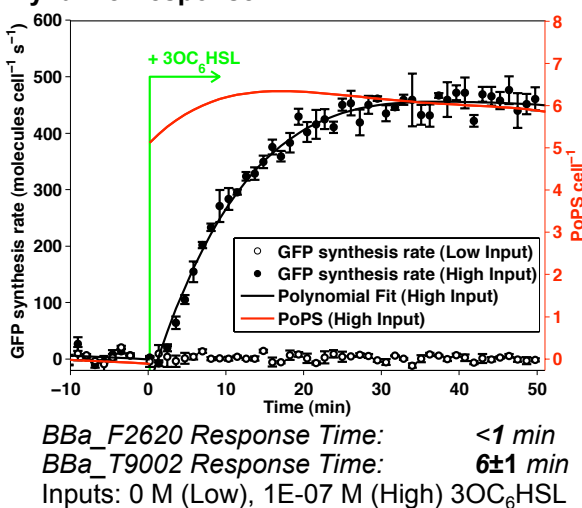


R0040 B0034 C0062 B0015 R0062  
P<sub>LtetO-1</sub> RBS luxR Term. P<sub>luxR</sub>

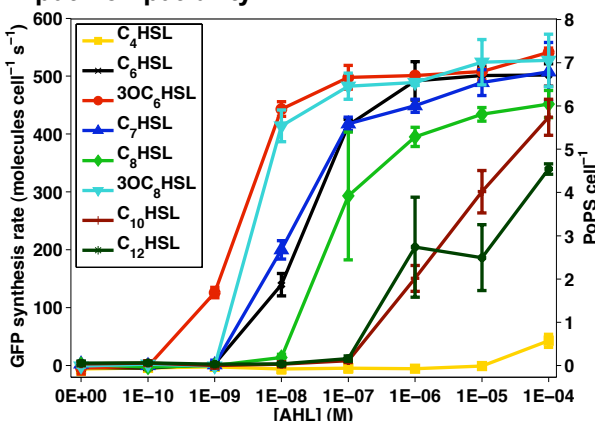
## Static Performance\*



## Dynamic Response\*



## Input Compatibility\*



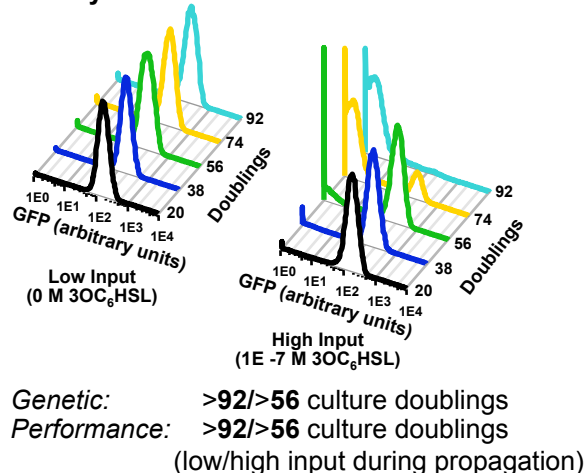
## Part Compatibility (qualitative)

Chassis: MC4100, MG1655, and DH5α  
 Plasmids: pSB3K3 and pSB1A2  
 Devices: E0240, E0430 and E0434

## Transcriptional Output Demand (low/high input)

Nucleotides: 0 / 6xNt nucleotides cell<sup>-1</sup> s<sup>-1</sup>  
 Polymerases: 0 / 1.5E-1xNt RNAP cell<sup>-1</sup>  
 (Nt = downstream transcript length)

## Reliability\*\*



## Conditions (abridged)

Output: PoPS measured via BBa\_E0240  
 Culture: Supplemented M9, 37°C  
 Plasmid: pSB3K3  
 Chassis: MG1655  
 \*Equipment: PE Victor3 multi-well fluorimeter  
 \*\*Equipment: BD FACScan cytometer

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Signaling Devices

Authors: Barry Canton  
 Ania Labno  
 Updated: March 2008

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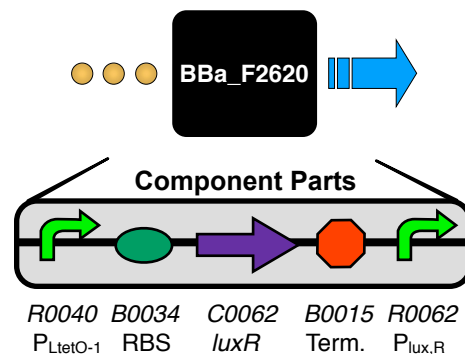
License: Public

# BBa\_F2620

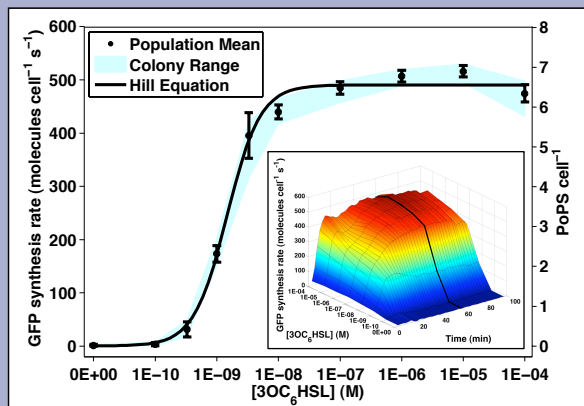
## 3OC<sub>6</sub>HSL → PoPS Receiver

### Mechanism & Function

A transcription factor (LuxR) that is active in the presence of a cell-cell signaling molecule (3OC<sub>6</sub>HSL) is controlled by a regulated operator (P<sub>LtetO-1</sub>). Device input is 3OC<sub>6</sub>HSL. Device output is PoPS from a LuxR-regulated operator. If used in a cell containing TetR then a second input such as aTc can be used to produce a Boolean AND function.



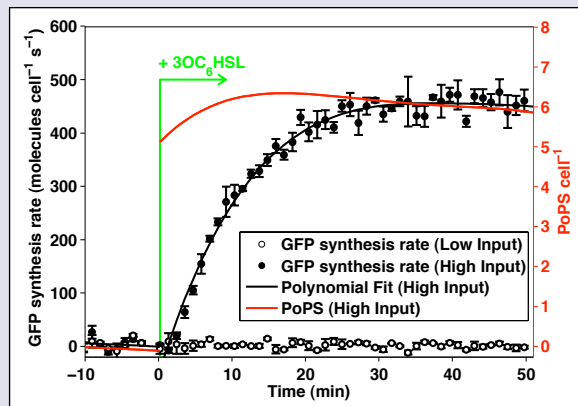
### Static Performance\*



$$P_{out} = \frac{P_{max} [3OC_6HSL]^n}{K^n + [3OC_6HSL]^n}$$

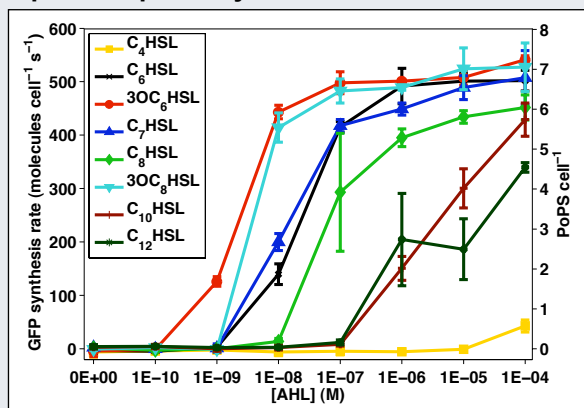
$P_{max}$ : 6.6 PoPS cell<sup>-1</sup>  
 $K$ : 1.5E-09 M 3OC<sub>6</sub>HSL  
 $n$ : 1.6

### Dynamic Performance\*



BBa\_F2620 Response Time: <1 min  
BBa\_T9002 Response Time: 6±1 min  
Inputs: 0 M (Low), 1E-07 M (High) 3OC<sub>6</sub>HSL

### Input Compatibility\*



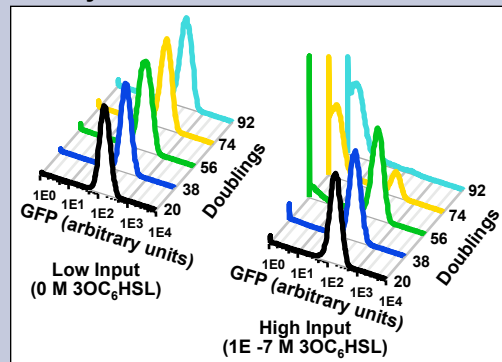
### Part Compatibility (qualitative)

Chassis: MC4100, MG1655, and DH5α  
Plasmids: pSB3K3 and pSB1A2  
Devices: E0240, E0430 and E0434

### Transcriptional Output Demand (low/high input)

Nucleotides: 0 / 6xNt nucleotides cell<sup>-1</sup> s<sup>-1</sup>  
Polymerases: 0 / 1.5E-1xNt RNAP cell<sup>-1</sup>  
(Nt = downstream transcript length)

### Reliability\*\*



Genetic: >92/>56 culture doublings  
Performance: >92/>56 culture doublings  
(low/high input during propagation)

### Conditions (abridged)

Output: PoPS measured via BBa\_E0240  
Culture: Supplemented M9, 37°C  
Plasmid: pSB3K3  
Chassis: MG1655  
\*Equipment: PE Victor3 multi-well fluorimeter  
\*\*Equipment: BD FACScan cytometer